doing, even reestablishing the insertion of the diminutive pedal muscle upon the inner face of the imperfectly reproduced right valve, which was deformed owing to the lack of support of the right mantle, because of the removal of the original right valve. As a consequence the right mantle was rolled up at the edge, and this deformation of the mantle was reflected in the attempted regeneration of the lost right valve. The pigment developed during exposure to light in the mantle and gills in oysters with the right valve removed which were kept alive in the aquaria at Sea Isle City by Prof. Schiedt was wholly confined to the epidermis as it normally is at the mantle border in the unmutilated animal in nature. The inference to be drawn from these facts is that the development of pigment in the mantle and gills was wholly and directly due to the abnormal and general stimulus of light over the exposed surface of the mantle and gills, due to removal of the right valve, and that the mantle border, the only pigmented portion of the animal, is pigmented because it is the only portion of the animal which is normally and constantly subjected to the stimulus of light.

Oysters which had the right valve removed were found to live perfectly well in the marine aquaria at Sea Isle, and would no doubt have survived till now had Prof. Schiedt been able to continue his experiments there. The most remarkable results obtained as a consequence of these experiments were that the adductor muscle was soon attacked by bacteria and destroyed by putrefaction while the great ganglion underlying it remained uninjured. The pericardiac cavity was also torn open, exposing the heart completely, in some instances. In these cases the heart continued to beat and propel the blood through the other organs of the body as if nothing untoward had happened. The maximum rate of pulsation of the heart noted was 52 per minute, which is much greater than the rate hitherto reported.

The anus was also retracted into a new and more anterior position, owing to the loss of support which it had suffered in consequence of the sloughing away of the adductor muscle. Whether the adductor muscle thus sloughed away would ultimately be reproduced was not determined, since the experiments were interrupted before the animals had time to present evidence of such regeneration of the lost muscles.

These experiments open up a most suggestive line of investigation upon other univalve and bivalve mollusca, viz: experimental researches as to the effect of removing the valves and exposing them to the light. Many other species, both marine and freshwater, might obviously be experimented upon with very instructive results as respects the questions raised by the present communication.

The hermaphroditism and viviparity of the oysters of the Northwest coast of the United States.—PROF. J. A. RYDER also reported on

behalf of Prof. R. C. Schiedt, of Franklin and Marshall College, Lancaster, Pa., the latter's discovery of the fact that the oysters native to the northwest coast of the United States are hermaphrodite and viviparous. Specimens from the coast of Oregon and Washington show that the same condition exists in the reproductive follicles as in those of *Ostrea edulis* of Europe. The presence of eggs and of spermatoblasts and spermatozoa in the same follicles is the invariable rule. The ova, like those of *O. edulis*, are much larger than those of *O. virginica*, though perhaps not quite so large as the former. The embryos are fertilized in the gill and mantle cavities, where they undergo development.

These northwest-coast oysters also resemble the oysters of Europe in that they are small and have little or no indication of purple pigment on the impression or point of insertion of the adductor muscle, which is so conspicuous a feature in *Ostrea virginica* of our eastern coast.

On the cause of the greening of the oyster and its presumed algous endoparasites.—PROF. JOHN A. RYDER also reported on behalf of Prof. Schiedt and himself the fact that living oysters from which the right valves had been removed, also became green about the heart as soon as green algæ appeared on the sides of the aquaria in which the oysters were kept at Sea Isle laboratory. Our experience, unlike that of Prof. Decaisne and others in France, was not conclusive as to the cause being the bluish green pigment, *phycocyanin*, absorbed from certain diatoms. On the contrary, the forms of algæ present were diatoms, desmids and the spores of *Ulva*, and, possibly, round-celled unicellular forms, so that it became impossible to decide from which species, used as food, the pigment was derived that discolored the affected heart of the specimen observed to become tinged.

Prof. Schiedt now informs the speaker that some of these marine algæ which are believed to have caused the discoloration of the oysters at Sea Isle, he has kept alive in a small aquarium filled with sea water, at Lancaster, for over two months since he left the sea-side laboratory.

The occurrence of these unicellular algæ of various kinds in association with the abrupt appearance of the green color in some one organ of the oyster, as happened at Sea Isle City, opens up the query whether the singular brownish green bodies so often observed by Prof. Ryder in sections of the connective tissues of the oyster are not endoparasitic algæ, which are in some way genetically connected with some of the forms that appeared in association with "greened" oysters at Sea Isle. The late Prof. Leidy's discovery, many years ago, of algæ in the tissues of fresh-water mussels, is suggestive in this connection.